CURRENT LITERATURE
IN
AGRICULTURAL ENGINEERING

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ENGINEERING

Vol. 7, No. 5. WASHINGTON, D.C. December, 1937.

Agricultural Engineering.

Agricultural-engineering foundation. New Agriculture. v. 20, no. 1. October, 1937. p. 5. Nation-wide economic foundation, non-stock, non-profit, to aid and encourage: - Development and utilization of wealth contained in valuable raw materials, now wasted and destroyed on farms and in forests of all States, and to that extent increasing and stabilizing national income and purchasing power - creating gainful employment - reducing taxes, with lower cost and higher living standard for all consumers.

Mechanized agriculture and civilization. Agricultural Engineering. v. 18, no. 11. November, 1937. p. 501. In introducing subject Mr. Finches presents numerous facts and figures quite familiar to agricultural engineers, relative to extent, social influence, and possibilities of mechanized agriculture. For information of urban readers in unrelated fields of work he reviews nature of agriculture, temporary and superficial factors tending to hide true character of agricultural progress, and outline of history of mechanical development of farm tools, together with their related social influence. From this mooring of fact, author launches several interesting philosophical implications as to probable future of agricultural engineering progress and its social implications. He admits difficulties of adjustment to mechanical progress, resulting "technological unemployment..., labor displacement..., economic, unbalance, social unrest, political upheaval," and indicates that "benefits to be obtained from changes must be set against costs." With due recognition of increase in wealth already created by technological progress, factors that have obscrued this increase from ordinary observer, and influences which have minimized its use in support of leisure and security, he sums up his viewpoint on future as follows: "This unsettled time is one of those periods significant in the development of civilization. We are engaged in another of those surges of invention, of technological change, by which men are further released from limitations of human physical strength. Agriculture has always been, and still is actively which used largest portion of human energy. There now appears promise of considerably reducing this human energy demand by increasing substitution of mechanical energy, by further extensions of technological controls. With these changes will come important consequences and grave problems. But energy saved should be sufficient for solution of problems, and when necessary social and economic adjustments have been made, there will be found remaining considerable advance in civilization. Abstract of article by Harold E. Pinches in autumn number of "Social Science."

Agricultural Engineering.

What English and American agricultural engineers can learn from each other. By Claude Culpin. Presented before the North Atlantic Section, American society of agricultural engineers, Toronto, Canada, October 12, 1937. 8 p. Mimeographed.

Agriculture.

Agriculture goes streamlined. By Research department, Farm Equipment Institute. Implement and Tractor. v. 52, no. 23. November 13, 1937. p. 32-33.

Description of the agriculture and type-of-farming areas in Texas. By C.A. Bonnen and B.H. Thibodeaux. College station, Texas, 1937. 91 p. Texas. Agricultural experiment station. Bulletin no. 544.

Dodo and modern agriculture. By W.C. Krueger. Chairman's annual address, North Atlantic Section, American society of agricultural engineers, Toronto, Canada, October 12, 1937. 2 p. Mimeographed.

The ever normal granary: What can it do for the corn belt and the nation? Address by Henry A. Wallace, Secretary of Agriculture, before a conference of corn and livestock producers and business and labor leaders at Indianapolis, Indiana, November 8, 1937, Washington, D.C., U.S. Department of Agriculture, 1937. 25 p. Mimeographed.

Government reorganization to make democracy work for agriculture. By W.R. Ogg. Nation's Agriculture. v. 13, no. 1. December, 1937. p. 7-8, 14-15.

Graphic summary of the number, size, and type of farm, and value of products. (Based largely on the Census of 1930 and 1935) By O.E. Baker. Washington, Govt. print. off., 1937. 76 p. U.S. Department of Agriculture. Miscellaneous publication no. 266.

New streamlined agriculture. By Research Department, Farm Equipment Institute. Farm Implement News. v. 58, no. 24. December 2, 1937. p. 22, 42.

Report of the Secretary of Agriculture. Washington, D.C., U.S. govt. print. off., 1937. 115 p.

Response of government to agriculture: An account of the origin and development of the United States Department of Agriculture on the occasion of its 75th anniversary. By Arthur P. Chew, Washington, D.C. U.S. govt. print. off., 1937. 107 p.

Statistical study of agricultural and related trends in South Carolina. By J.L. Fulmer. Clemson, S.C., 1937. 70 p. South Carolina agricultural experiment station of Clemson agricultural college. Bulletin 312.

Agriculture. (Cont'd)

Statistics of Texas agriculture. College station, Texas, 1937. 103 p. Texas. Agricultural experiment station. Circular no. 80.

Twentieth annual report of the Department of agriculture July 1, 1936 to June 30, 1937. Springfield, Ill., Illinois Department of agriculture, 1937. 163 p.

Washington, Jefferson, Lincoln and agriculture. Washington, D.C. United States Department of Agriculture. Bureau of agricultural economics. 1937. 102p. Bibliography. Processed.

Air Conditioning.

Air conditioning farm buildings. By F.L. Fairbanks. Presented before the North Atlantic Section, A.S.A.E., Toronto, Canada, October 12, 1937. 5 p. Mimeographed.

Air conditioning of farm buildings. By F.L. Fairbanks. Agricultural Engineering. v. 18, no. 11. November, 1937. p. 485-486. You do not always have to have mechanical heating system or mechanical refrigerating system to air condition animal shelter. You can do it with animal heat, insulation, and properly designed ventilation system. In little more detail my defense is as follows: 1. Keep in mind what air conditioning is and that we are really air conditioning animal shelter. 2. First item of control is air composition, or you may call it purity. This is controlled by size of outtakes and intakes, location and design of outtakes and intakes, and wall construction. 3. Next item is temperature control. This is accomplished through design of outtakes and intakes, wall and ceiling construction, and animal heat. 4. Another item is humidity control. This is influenced by design of ventilation system, wall and ceiling construction and animal heat, heat and moisture production. 5. Last, air motion within air-conditioned space is controlled design of ventilation system, wall and ceiling construction, and animal heat distribution.

Getting a start on the attic ventilation load. By R.M. Winsborough. Electrical World. v. 108, no. 19. November 6, 1937. p. 1529, 1604. Attic ventilation is, of course, not air conditioning, yet it has load-building potentialities, and, in addition, offers something of a talking point for later conversion to complete air conditioning. Its load-building possibilities, operation costs and estimated annual revenue obtained are presented in this analysis of the activities of a Southern utility.

Alcohol Fuel.

Farm crop alcohol blended into auto fuel. Popular Mechanics. v.68, no. 4. October, 1937. p. 558-559. Customers report marked improvement in mileage, cooler engines, some reduction in carbon formation and increased power under load after using the fuel, which is designated as Agrol 5, 10 or 15. Prices are about same as for gasoline,

Alcohol Fuel. (Cont'd)

with two higher grades commanding premium of one to two cents per gallon. New fuel is made from alcohol fluid mixed in varying proportions with gasoline. It is composed of seventy-eight percent of ethyl alcohol, six per cent of other ingredients derived from farm products and sixteen per cent of materials produced from coal. Then Agrol Fluid is blended with gasoline, Agrol 5 containing from five to seven and one-half per cent of the fluid and Agrol 15 containing twelve and one-half to seventeen and one-half per cent.

Foreign cars' speed traced to alcohol-benzol fuels. Popular Mechanics. v. 68, no. 4. October, 1937. p. 520. If two cars have equal cylinder capacity and mechanical efficiency, car equipped to use formula fuel will run faster than car using gasoline. This is due, to fact that alcohol is cooler, has higher latent heat co-efficient and therefore delivers higher horsepower at given compression ratio. Alcohol is extremely high in anti-knock properties, permitting much higher compression ratios than gasoline. Benzol gives tremendous power and is hot.

Barns.

What's next in barns? By Earl D. Anderson. Paper presented at meeting of North Atlantic section American society of agricultural engineers, Toronto, Canada, Oct. 12, 1937. 10p. Mimeographed.

Building Construction.

Cracks you can't laugh off. By Eugene Raskin. Better Homes & Gardens. v. 16, no. 1. September, 1937. p. 24-25, 77.

Stairways. By Raymond Baxter Eaton. American Architect and Architecture. v. 101, no. 2654. February, 1937. p. 91-95.

TVA repairs oust termites. By E.S. Draper. American Builder and Building Age. v. 59, no. 8. August, 1937. p. 75-77. How termites are eradicated.

Building Materials.

California redwood and its uses. Prepared by the Forest products division. Washington, U.S.Govt. print. off., 1937. 30p. U.S. Department of commerce. Bureau of foreign and domestic commerce. Trade promotion series. No. 171

House of earth in New Mexico. American Home. v. 18, no. 6. November, 1937. p. 32, 127-128.

Southern yellow pine; A manual of standard wood construction. 13th ed. New Orleans, La., Southern pine association, 1937. 199p.

Central Valley Water Project.

Work starts on Contra Costa Canal. Central Valley project. Reclamation Era. v. 27, no. 11. November, 1937. p. 256.

Cotton Gins and Ginning.

Effects of feeds and saw speeds on cotton turn-out and quality. By Charles A. Bennett and Francis L. Gerdes. Washington, U.S. Govt. print. off., 1937. 4p. U.S, Department of Agriculture. Leaflet no. 151.

Potential mechanical improvements involved in modernizing cotton gins. By Chas. A. Bennett. Cotton and cotton oil press. v. 38, no. 36. September 4, 1937. p. 3-4.

Cotton Machinery.

Mechanical cotton picking in two years. Arizona Producer. v. 16, no.17. November 15, 1937. Arizona trials leave no doubt I.H.C. machine to be complete success soon.

Dairy Farm Equipment.

Bossy calls in the engineers. By A.D. Montgomery. Farm Journal. v. 61, no. 10. October, 1937. p. 9, 59.

Dams.

Algerian dams of placed rockfill. By I. Gutmann. Engineering News-Record. v. 119, no. 23. December 2, 1937. p. 889-894. Recent irrigation dams in Algeria indicate a focusing of practice on placed rockfill, with upstream decks of asphalt or concrete paving.

Diesel Engines.

The American picture-Diesel fuel research. By C.G.A. Rosen. S.A.E. Journal. v. 41, no. 3. September, 1937. p. 393-399. Paper reviews fuel research conducted at San Leandro laboratory of Caterpillar Tractor Co. and, therefore, is limited to the precombustion chamber type of Diesel engine burning California base fuels. Describes investigations of ignition quality, fuel spray characteristics, and injection phenomena by means of single cylinder test unit fitted with a quartz observation window, stroboscope, timing disc and phase changing device, Discussion of products of incomplete combustion as influenced by compounded lubricants and ring belt temperatures concludes paper.

Design developments in European automotive diesel engines. By H.R. Ricardo and J.H. Pitchford. S.A.E. Journal. v. 41, no. 3. September, 1937. p. 405-414. General consideration of particular factors which define development of compression-ignition engine for automotive as apart from other purposes is presented. Various combustion systems, their respective merits, and individual characteristics in light of particular conditions set forth previously are reviewed. Evolution of general mechanical design is traced, as resulting from requirements of particular duty and from experience gained under prolonged service conditions, including survey of most prevalent

Diesel Engines. (Cont'd)

troubles and difficulties and of measures which have proved effective in overcoming them. Paper also discusses some economic aspects of compression-ignition engine operation, and effects of such artificial factors as fuel taxation and distribution of suitable fuels on design and on choice of combustion system. General survey of present uses of high-speed oil engine for automotive purposes in Europe, including railcar developments and likely future trends, concludes paper.

Diesel motors: A list of recent books. Compiled by Anne L. Baden under the direction of Florence S. Hellman. Washington, D.C., Library of Congress, division of bibliography, 1937. 10p. Mimeographed.

Improved diesel engines studied by oil and auto engineers. By Arch L. Foster. National petroleum news. v. 29, no. 40. October 6, 1937. p. 25-26, 28. Discussion before Southwest regional meeting of the Society of Automotive Engineers.

Drainage.

Drainage in East Anglia. Electrical Review. v. 121, no. 3122. September 24, 1937. p. 400. Wind pumps supplanted by modern electrically driven plant.

Droughts.

Challenge of the drought. By John C. Page. Reclamation Era. v. 27, no. 11. November, 1937. p. 253-255.

Drying of Crops.

Recent progress in forage drying. By W.M. Hurst. Agricultural Engineering. v. 18, no. 11. November, 1937. p. 499-501. Types of driers. Table 1. Reported distribution, type, and 1936 output of forage driers in the United States. Fuels and drying temperatures. Field curing.

Electric Power.

Electric power development in the U.S.S.R. A collective study prepared under the guidance of Banjamin I. Weitz corresponding member of the Academy of sciences of the U.S.S.R. Translated by Leonard E. Mins. Moscow, Inra publishing society, 1936. 496 p.

Electric Wiring.

Responsibilities for adequate farm wiring. By George W. Kable. Agricultural Engineering. v. 18, no. 11. November, 1937. p. 503-504.

Electricity-Distribution.

Electrifying 13,500 New York farms creates new opportunities. By Lincoln D. Kelsey. Extension Service Review. v. 8, no. 11. November, 1937. p. 168-169.

Electricity-Distribution. (Cont'd)

1,138,335 U.S. farms estimated served with high line power. Rural Electrification News. v. 3, no. 3. November, 1937. This compares with 743,954 farms electrified as of December 31, 1934. Table compiled by Edison Electric Institute.

Rural electrification program of Niagara, Lockport and Ontario Power Company. Edison Electric Institute. Bulletin v. 5, no. 9. September, 1937. p. 367-372.

Electricity in the Home.

Electric helpers for the farm family. Schenectady, New York. General Electric, 1937. 50 p.

Electricity on the Farm.

Better service for less money. By H.N. Wells. Electricity on the Farm. v. 10, no. 10. October, 1937. p. 13-14. Table 1. Kilowatt hours used each month.

Current used liberally pays its way on farm. By Prof. W.T. Ackerman. Rural Electrification News. v. 3, no. 1. September, 1937. p.19-20.

Facts and fallacies in selling rural electrification. By Charles A. Kimball. Paper presented before the North Atlantic Section, American society of agricultural engineers, Toronto, Canada, October 12, 1937. 7p. Mimeographed.

Farm family's new hired help. Pennsylvania Farmer. v. 117, no. 5. August 28, 1937. p. 2.

Getting results in rural electrification. By H.D. Rothwell. Presented at the North Atlantic section of the American society of agricultural engineers. Convention at Toronto, Ontario, Oct. 12, 13 and 14, 1937. 12p.

Keep on the safe side of electricity. Prepared by Wayne E. Thurman. Lincoln, Neb., 1937. Three unnumbered leaves. Nebraska cooperative extension work in agriculture and home economics. Extension circular 756. Mimeographed.

Making the best use of electricity on the farm. By C.V. Phagan. Southern Agriculturist. v. 67, no. 10. October, 1937. p. 5.

Rural electrification. By E.W. Golding. Electrical Review. v. 121, no. 3122. September 24, 1937. p. 397-399. Its potentialities and the requirements of agriculture.

Engineering.

Engineering profession. By Gano Dunn. General Electric Review. v. 40, no. 11. November, 1937. p. 528-530. Not what the engineer does, but how he does it differentiates engineering from the other learned professions.

Erosion Control.

Engineering phase. By T.B. Chambers. Soil Conservation. v. 3, no. 3. p. 60, 62-63, 70. Use of vegetation in mechanical erosion-control structures.

Erosion control in the Northeast. Washington, D.C., U.S. Department of agriculture. Soil Conservation service. 1937. 24p.

Erosion seen as major threat to future of the United States. Domestic Commerce. v. 20, no. 13, November 10, 1937. p. 244. Erosion removes 126 billion pounds of plant food from America's fields and pastures every year. This is more than 21 times as much as is extracted by crops, and entails an annual loss to farmers of at least $400,000,000.

Lining ditches with cotton. Arizona Producer. v. 16, no. 13. September 15, 1937. p. 8. It has already been tested on limited scale by Bureau of Agricultural Engineering and is to have real trial in next few months under new program that Agricultural Adjustment Administration is launching for developing new cotton uses. Cotton fabric serves as base on which asphalt is sprayed. Cost is only fraction of concrete lining, but it remains to be seen how new lining will last. One obvious advantage is that breaks can be readily patched. Other suggested new uses of cotton: As reinforcing material for coverings on levees and revetments; as covering or protective material on banks of dams and reservoirs; as protective covering in seeding lawsn and terraces; as covering for cages or enclosures used for propogation of insect parasites; as covering to prevent escape of insects from storage plants and other possible sources of infestation; to prevent or lessen nuisance caused by winged wild life; and as covering for bales of cotton. New uses of cotton fabric previously included in program, in addition to those already mentioned were: Covering or reinforcing material for highway fills and cuts; protective covering for hives of bees; as protective covering for fruits and vegetables during growing, ripening or curing processes; as covering for shading or protecting tree seedlings and shrubs during critical periods of growth; as portable covering, hood or tent for use in fumigating, spraying or dusting; as covering or insulating material for permanent or semi-permanent structures; and as membrane or reinforcing material in surfacing airport runways, roads, bridges, paths and walks.

Next step: Emphasis shifts to the districts plan. By Dillon S. Myer. Soil Conservation. v. 3, no. 5. November, 1937. p. 126-128. In general, Service is prepared to provide, insofar as available funds and resources permit, following principal types of assistance: 1. Technical personnel to assist districts in making necessary conservation surveys, in formulating district soil conservation programs, and in preparing conservation plans for individual farms within districts. 2. Limited supply of new or uncommon varieties of erosion-resistant plants to be used for purposes of demonstration only. 3. Small amount of funds, where justified and available, but not in excess of small proportion of total assistance rendered by Service.

Protecting bottomlands from erosional debris: A case history. By Carl B. Brown. Soil Conservation. v. 3, no. 4. October, 1937. p. 93-96. Describes one solution of problem and lays partial basis for appraising its merits.

Erosion Control. (Cont'd)

Soil conservation districts for erosion control. Washington, D.C. Govt. print. off., 1937. 19p. U.S. Department of agriculture. Soil conservation service. Miscellaneous publication no. 293.

Soil-erosion problems on irrigated land. By Dana F. Kirkmire. Soil Conservation. v. 3, no. 4. October, 1937. p. 112-114.

State legislation for erosion control. By Philip M. Glick. Soil Conservation. v. 3, no. 5. p. 120-125. States basic provisions of Standard Act and of legislation modeled upon it and now in force in 22 States.

Stream bank protection. By I. L. Savesen and Virgil Overholt. Agricultural Engineering. v. 18, no. 11. November, 1937. p. 489-491. Ohio State University and Soil Conservation Service cooperated in making study which resolved itself into following phases: 1. Field observations of problem. 2. Review of available information. 3. Model studies, conclusions, and recommendations. 4. Follow-up field observations of controls developed.

Farm Chemurgic Council.

Yerkes sees benefits for everybody in farm chemurgic program. Farm Implement News. v. 58, no. 24. December 2, 1937. p. 38. Emphasizing this objective of farm chemurgic movement. Mr. Yerkes reminded leaders in agriculture, industry, and science to survey possibilities of new industrial markets for Oklahoma farm products that "good farmers have always endeavored to work out cropping systems which included several different crops, preferably those which could be handled with same equipment and which did not conflict too seriously with each other in matter of labor requirements. Soundness of this practice has been recognized for years, not only by practical farmers but by best authorities on farm management. Since farm chemurgic movement involves production in this country of number of crops which are needed by or could be used by our industries, but which are either not being grown in this country or grown on smaller scale than is desirable, it is plain that this offers opportunity to many farmers to add new crops which may improve efficiency of their farming systems."

Farm Buildings.

Toward better farm buildings. By W.G. Kaiser and G.B. Hanson. Agricultural Engineering. v. 18, no. 11. November, 1937. p. 497-498. In attempting to develop or improve product for better farm buildings, industry appreciates that certain fundamental requirements must be met. These requirements may be briefly summarized as follows: 1. Completed building must be substantial to provide dependable shelter. 2. Moderate first cost and low annual cost of farm building are perhaps of next greatest importance. 3. Better farm buildings must also meet requirement of more efficient production, which properly includes requirement that they be more comfortable and attractive to live and work in.

Farm Income.

January-September farm income by states. Farm Implement News. v. 58, no. 23. November 18, 1937. p. 44. Cash farm income from sales of products and from government payments under conservation act for first nine months of year is estimated officially as $6,175,000,000 compared with $5,432,000,000 in corresponding months of 1936.

Lag in farm wages. By L.H. Bean. Agricultural Situation. v. 21, no.10. October 1, 1937. p. 11-14. Farm wages have lagged noticeably behind rise in farm income and industrial wages during last 5 years. Whereas farm income available for living increased about 200 per cent during this period, farm wage rates increased less than 50 per cent. Farm wage rates relative to farm prices, farm income and city wage earnings now are about 20 per cent less than in predepression years. No adequate explanation of farm-wage discrepancy is at present possible without a more detailed analysis of factors referred to above. Direct and indirect data as to farm labor supply and actual employment on farms are too meager, and more accurate data as to acreage and production do not offer adequate or consistent explanation.

$9,000,000,000 estimated cash farm income 1937. Utah Farmer. v. 58, no.3. September 10, 1937. p. 14.

Farm Layouts.

Farm planning. By H.C. Diener. Soil Conservation. v. 3, no. 3. September, 1937. p. 82-83. Vegetative cover is a controlling factor.

A homestead of your own. By M.O. Waugh. Utah Farmer. v. 58, no. 6. October 25, 1937. p. 21.

Farm Machinery and Equipment.

Annual farm machinery conference planned. Implement Record. v. 34, no. 12. December, 1937. p. 21. Ninth annual Farm Machinery Conference is announced by Agricultural Engineering Division of University of California to be held at Davis, on University Farm campus, Friday and Saturday, January 7 and 8.

The 14-inch deep-furrow wheat drill tests. By L.E. Thatcher and R.D. Lewis. Ohio agricultural experiment station. Bimonthly bulletin no. 189. November-December, 1937. p. 157-163. Tests with 14-inch disk-type, deep-furrow wheat drill which places seed in bottom of trench were carried on by Ohio Agricultural Experiment Station and Ohio Extension Service for 6 years, 1929 to 1934, inclusive. Deep-furrow drill was compared with ordinary 7- or 8-inch grain drill normally operated and also with every other cup closed, to give 14- or 16-inch row spacing. Different rates of seeding were also employed and, in few tests, both early and late dates of seeding were included.

From U.S. farm outlook report. Farm Implement News. v. 58, no. 23. November 18, 1937. p. 24. Implement prices, implement sales volume, rubber tired equipment, increased mechanization, horse and mule supply.

Gleaner announces 6 ft. combine. Implement and Tractor. v. 52, no. 24. November 27, 1937. p. 23.

Farm Machinery and Equipment. (Cont'd)

Improving the farm wagon. By William P. Kintzley and Dudley P. Craig. Fort Collins, Colorado, 1937. 7p. Colorado state college. Colorado experiment station. Bulletin 434.

Nursery root pruner for use in light soils. By W.F. McCulloch. Michigan state college. Agricultural experiment station. Quarterly bulletin. v. 20, no. 2. November, 1937. p. 92-93.

Potato machinery improvement. By M.G. Huber. Paper presented before the North Atlantic Section, American Society of agricultural engineers, Toronto, Canada, October 12, 1937. 4p. Mimeographed.

Power machinery in truck farming. By W.J. Durkee. Paper presented before the North Atlantic Section, American society of agricultural engineers, Toronto, Canada, October 12, 1937. 3 p. Mimeographed.

Small combine. By G.T.M. Bevan. Paper delivered before the North Atlantic Section of the American society of agricultural engineers, at Toronto, October 12, 1937. 11p. Mimeographed.

Steel wheels - lugs and their effectiveness - shape and spacing. By S.J. Wright. Implement and Machinery Review. v. 63, no. 750. October 1, 1937. p. 581-582.

Trade Commission's implement investigation: Editorial. Farm Implement News. v. 58, no. 23. November 18, 1937. p. 21. In its annual report for fiscal year ended June 30, 1937, Federal Trade Commission devotes two pages to its investigation of implement business now in progress. Some facts not hitherto generally known are disclosed. One is that questionnaires were sent to nearly 16,000 farmers located in all parts of country asking for reports of prices paid, credit terms, indications of unfair competitive practices and general information applicable to farm implement business. Another is that engineering study is being made to cover manufacturing methods, changes in design, improvements in quality of machines and other engineering problems.

Farm Mechanics.

How to fit a buzz saw. By L.M. Roehl. Electricity on the Farm. v. 10, no. 12. December, 1937. p. 22-23. Four steps to fitting of saws: 1, true it up or joint it; 2, gum it; 3, file it; 4, set it.

West Coast A.S.A.E. learns how farmers remake their tools. By Hal Higgins. Farm Implement News. v. 58, no. 24. December 2, 1937. p. 27-29.

Farm Power.

Farm power is increasing: Horse prices lower as result. By Gilbert Gusler. Ohio Farmer. v. 180, no. 5. August 28, 1937. p. 6. Tendency to change from animal to mechaical power has been stimulated

Farm Power. (Cont'd)

in last two or three years. Rise in horse and mule prices compared with tractor and truck costs altered ratio of investment required for two forms of power. Horses and mules have had more favorable trade in value toward tractor and truck purchases. In past season, feed cost has been high compared with motor fuel. Many farmers find mechanical power easier solution than increased numbers of horses or mules for problem of scarce and high priced labor. Constant improvements, such as tractor for small farms, rubber tires and like, have adapted tractors for wider range of farm sizes and types of farm work. Larger machines such as combines and corn pickers require tractor power.

Feed Grinders and Grinding.

Grain grinding. By N.E. Macpherson. North Atlantic Section of the American Society of agricultural engineers. Convention at Toronto, Ontario, October 12, 13 and 14, 1937. 8p.

Handling and grinding grain with electric power. By Truman E. Hienton. Electricity on the Farm. v. 10, no. 10. October, 1937. p. 7-9.

Fences.

Cold and hot fences. By H.W. Riley. Presented at a meeting of North Atlantic section of the American society of agricultural engineers, Toronto, Canada. Oct. 12, 1937. 8 p. Mimeographed.

Many farm uses for electric fences. Rural Electrification News. v. 3, no. 1. September, 1937. p. 23-24. Electric fence should prove valuable addition to any farm having at least few head of cattle and hogs. Farmers in East and Midwest are generally employing electric fence in connection with "hogging-down" corn, dividing pasture land, and grazing, before fall plowing, stretches of rowen or meadow not permanently fenced. In West, device is finding wide use on irrigated ranches because it is especially valuable for irrigation of pastures in which, in rotation, first section of field may be irrigated, second allowed to grow, and third pastured. Irrigation farmers are also using fence to make possible grazing of ditches to keep weeds down.

Fire Protection.

Farm fire protection. Rural Electrification News. v. 3, no. 1. September, 1937. p. 13-15. In recent years practice of providing organized rural fire protection under some plan ot other has been growing rapidly. Rural changes and improvements have brought about change in attitude of people on farms toward fires. Motorized apparatus, better roads, rural electrification, rural telephones, farm business associations, and town and country cooperation have made farm and rural fire departments practical and advisable. Adequate fire protection is small investment that pays farm owner large dividends. It may prevent fire from wiping out in few minutes work and savings of many years.

Fire Protection. (Cont'd)

Farmers get the jump on fire. By Loren S. Bush. Farmers Digest. v. 1, no. 7. November, 1937. p. 57-60.

Preventing farm fires. Utah Farmer. v. 58, no. 4. September 25, 1937. p. 7.

Floods and Flood Control.

Flood control. By A.L. Patrick. Soil Conservation. v. 3, no. 3. September, 1937. p. 55-57. Supplemental value of vegetative cover stressed.

Magnitude and frequency of floods on Illinois streams. By George W. Pickels. Urbana, Illinois, 1937. 62 p. University of Illinois. Engineering experiment station. Bulletin no. 296.

Model's miniature floods aid in forecasting. Popular Mechanics. v. 68, no. 4. October, 1937. p. 535. Designed to make more accurate forecasting of floods, model of Allegheny, Monongahela and part of the Ohio river basins is being used by government engineers in Pittsburgh district. Called "hydraulic integrator," model is eighty-five feet long and six feet wide and its highest point is ten feet above lowest. One inch of width or length on model is equivalent to more than one quarter of mile on actual river system, while one inch in depth represents six and two-thirds feet. Rivers and their tributaries are represented by deep, narrow gorges equipped with brass baffles to make water flow at correct depth. Run-off from drainage basin of each important stream is mechanically controlled by cam shaft which revolves once in what would correspond to week's time in nature. Cams may be changed so that flood of any size or peculiarities may be portrayed by model. Hydraulic integrator is expected to increase reliability of flood forecasting by solving mechanically complicated differential equations which govern movement of flood waves. Model also will help to determine best location and height of proposed flood control dams. It represents 23,250 square miles of drainage area in New York, Pennsylvania, West Virginia and Ohio.

Muskingum Valley lakes and dams lick flood menace. By Earl W. McMunn. Ohio Farmer. v. 180, no. 5. August 28, 1937. p. 1, 17.

Flow of Water and Gases.

Rate of flow of capillary moisture. By M.R. Lewis. Washington, D.C. U.S. govt. print. off., 1937. 30p. United States Department of agriculture. Technical bulletin no. 579. Bibliography. p. 27-29.

Heating.

Electric heating of residences. Heating & Ventilating. v. 34, no. 10. p. 49-50. In spite of its obvious advantages, the use of electricity for heating has been limited by its high relative

Heating. (Cont'd)

cost. One of the most favorable markets for electric cost and climate is the State of Washington. Article presents data on cost of installing and operating an electric heating system in a better class residence in Seattle, Washington.

Houses.

Housing still backward art: Research study would help. Science News Letter. v. 32, no. 858. September 18, 1937. p. 184.

Hydraulics.

Minnesota hydraulic laboratory for water power research. General Electric Review. v. 40, no. 11. November, 1937. p. 543.

Insect Control.

Home-made machine fights hoppers. By Vern Swartz. Through the Leaves. v. 25, no. 5. September, 1937. p. 166.

New type of grasshopper catcher. By P.B. Smith. Through the Leaves. v. 25, no. 5. September, 1937. p. 167.

Insulation.

Insulation-materials and application. I. By E.L. Doty. Electric Journal. v. 34, no. 11. November, 1937. p. 445-448. Insulation is probably the most vital part of any electrical device, and a knowledge of insulation characteristics, materials, and their use are of particular importance, especially to men who must prevent expensive shutdowns.

Irrigation.

Economic benefits of irrigation from the Kingsley (Keystone) reservoir. By Frank Miller and H.C. Filley. Lincoln, Neb., 1937. 57p. University of Nebraska. College of agriculture. Experiment station. Bulletin 311. Bibliography. p. 57.

Irrigation confab. Implement Record. v. 34, no. 12. December, 1937. p. 19. Regional meeting of the American Geophysical Union section of hydrology, sponsored by National Research Council, will be held on the David campus of the University of California, January 7 and 8. First day's program will include symposium on hydrologic aspects in the forests and on ranges. On second day there will be discussion of hydrology of Colorado river and flood control, and snow survey conference.

Land Utilization.

Economist's approach and objectives in land utilization. By David Weeks. Agricultural Engineering. v. 18, no. 11. November, 1937. p. 492, 494. Factors to be considered are: 1. Gross returns under present and potential management. 2. Net incomes to entrepreneur, to land, and to

Land Utilization. (Cont'd)

capital. 3. Net incomes to laborers, and living conditions involved. 4. Amount of employment and population support provided. 5. Stability and social desirability of communities supported. 6. Balance of potential tax receipts and necessary public expenditures. 7. Intangible social values involved, such as public uses or benefits from conservation of natural resources. Field of land utilization, so far as economics is concerned, divides itself into two important subfields of specialization - economic classification of land and devising of directional measures. Further specialization, unless it be in field of public finance and administration, seems unnecessary.

Place of soil studies in land classification and land use. By R. Earl Storie. Agricultural Engineering. v. 18, no. 4. November, 1937. p. 493-494.

Laundry Equipment.

Methods and equipment for home laundering. Prepared by the Textiles and Clothing division. Revised by Ruth O'Brien and Helen S. Holbrook. Washington, D.C., Govt. print. off., 1937. 40 p. U.S. Department of agriculture. Farmers' bulletin no. 1497.

Lighting.

Electric light on the poultry farm. Rural Electrification and Electrofarming. v. 13, no. 148. September, 1937. p. 30-31.

Milk Coolers.

Mechanical milk coolers. Paper presented before the North Atlantic Section, American society of agricultural engineers, Toronto, Canada, October 12, 1937. Guelph, Ontario, Canada, Ontario agricultural college, 1937. 8 unnumbered leaves. Mimeographed.

Miscellaneous.

Annual report of the Secretary of the Interior for the fiscal year ended June 30, 1936. Washington, U.S. Govt. print. off., 1936. 436 p.

Bibliography of reports by state and regional planning organizations. No. 4. Reports received in the library of the National resources committee. October-November 1937. Supplementary to "State planning programs and accomplishments" December, 1936, and no. 1. Covering reports January-April 1937, no. 2. Covering reports May-June 1937, no. 3. Covering reports July-September 1937. Washington, D.C., National resources committee, 1937. 10p. Mimeographed.

Machines and working hours; a pictorial presentation of facts on mechanization, working hours and the American standard of living. Chicago, Illinois, Machinery and allied products institute, 1937. 15p.

Miscellaneous. (Cont'd)

"1000 and one": Blue book of non-theatrical films. 13th ed. Chicago, Ill., Educational screen, inc., 1937. 100p.

Population statistics. Material prepared for a study of population problems. U.S. National resources committee. Washington, U.S. Govt. print. off., 1937. 2v. v. 1. National data. v.2. State data.

Progress report 1937. Statement of the advisory committee. National resources committee. Washington, U.S. Govt. print. off., 1937. 20p.

Regional planning par IV-Baltimore-Washington-Annapolis area. Baltimore, Maryland, Maryland state planning commission, 1937. 65p. Bibliography. p. 64-65.

Science and technology. By Ernest O. Lawrence. Science. v. 86, no. 2231. October 1, 1937. p. 295-298.

Motor Fuel.

Behavior of high and low cetane Diesel fuels. By G.C. Wilson and R.A. Rose. S.A.E. Journal. v. 41, no. 2. August, 1937. p. 343-348. Paper shows how high-cetane fuel can be just as rough as low-cetane fuel if injection timing is too early. Moreover, low cetane fuel can give smooth operation if injected late enough during compression stroke of engine with high compression ratio.

Characteristics of gasoline. By James I. Clower. Technical topics. (Virginia polytechnic institute). v. 7, no. 11. Nov. 1937.

Propane, butane, and related fuels. Washington, D.C., 1937. 34p. U.S. Department of Commerce, National Bureau of Standards. Letter circular no. 503.

Tractor operation by "Suction gas" (Generator gas). By G.A. Christie. Facts about Sugar. v. 32, no. 10. October, 1937. p. 404. Tractor has been put on market by Australian machinery firm that operates on gas generated by imperfect combustion of vegetable matter. Gas generator is in form of upright furnace which is filled with charcoal and fire started. Draft is regulated so that gaseous products consist only of carbon monoxide and little hydrogen, depending on moisture in fuel and air. These combustible gases are drawn into cylinder of engine, compressed, and ignited just as gasoline would be. Little gasoline is used in starting up, but thereafter tractor will run on gas generated from charcoal. Running costs of cultivating 143 acres, exclusive of driver's wages, were 2s. 3½d. per acre, or less than 1s. 4½d. per hour.

Orchard Heaters.

Orchard heater investigations as made by University of California. By H. B. Walker. California Citrograph. v. 22, no. 11. September, 1937. p. 494, 534-537.

Orchard Heaters. (Cont'd)

Orchard heater recommendations. Berkeley, Cal., University of California, Division of agricultural engineering, 1937. Various paging. Mimeographed.

Pipes and Piping.

Water power pipe lines. By John W. Lewis. Indian Engineering. v.102, no. 4. October, 1937. p. 132-135. Features of wood stave construction.

Plows and Plowing.

Andrus steel plow celebrates centenary. Wisconsin Agriculturist and Farmer. v. 64, no. 18. August 28, 1937. p. 5.

Two way electric plow in use in Soviet Russia. Science News Letter. v. 32, no. 863. No tractor is attached to plow, which can reverse and travel in either direction. It is particularly useful on large areas of flat ground without rock.

Poultry Houses and Equipment.

Electric brooders. By R.U. Blasingame. Pennsylvania Farmer. v. 117, no. 6. September 11, 1937. p. 19.

Forced ventilation brooder economical. By J.C. Scott. Electrical World. v. 108, no. 21. November 20, 1937. p. 96.

Useful portable colony house. Pacific Rural Press. v. 134, no. 8. August 21, 1937. p. 197. Gives bill of materials.

Rainfall and Runoff.

Flood runoff from small areas. By Victor H. Cochrane. Engineering News-Record. v. 119, no. 22. November 25, 1937. p. 864-867. New formulas eliminate inaccuracies which result when most formulas are applied to small areas of drainage.

Sources of moisture for precipitation in the United States. By Benjamin Holzman. Washington, D.C., Govt. print. off., 1937. 41p. United States Department of agriculture. Technical bulletin no. 589.

Storm rainfall of Eastern United States (revised), by the Engineering staff of the district. Dayton, O. Reynolds & Reynolds co., 1936. 352p. (Miami conservancy district. Technical reports part V).

Silos.

History of the silo. Farmers Digest. v. 1, no. 7. November, 1937. p. 9-11.

Silt.

Advance report on the sedimentation surveys of Lakes Crook and Gibbons Paris, Texas, February 27-March 27 and March 25-31, 1936. By L.M. Glymph and V.H. Jones. Washington, D.C., 1937. 15p. Mimeographed. U.S. Department of agriculture. Soil conservation service. Sedimentation studies. Division of research.

Soil Conservation.

Conserving corn belt soil. By Glenn K. Rule. Washington, U.S. Govt. print. off., 1937. 59p. U.S. Department of agriculture. Soil conservation service. Farmers' bulletin no. 1795.

Problems and needs of soil conservation. By H.H. Bennett. Address presented at the Annual conference of Extension workers, Purdue University, October 7, 1937. Washington, D.C. United States Department of agriculture. Soil conservation service, 1937. 13p. Mimeographed.

Society and the farmer have mutual intersts in the land. By M.L. Wilson. Soil Conservation. v. 3, no. 5. November, 1937. p. 117-119, 143.

Special problem in soil conservation. By William X. Hull. Agricultural Engineering. v. 18, no. 11. November, 1937. p. 505-506.

Soils.

Chemical composition of soils of Texas. G.S. Fraps and J.F. Fudge. College station, Texas, 1937. 87p. Texas. Agricultural experiment station. Bulletin no. 549. Bibliography. p. 85-87.

Soil survey manual. By Charles E. Kellogg. Washington, U.S. Govt. print. off., 1937. 136p. United States Department of agriculture. Miscellaneous publication no. 274. Bibliography. p. 134-135.

Storage Houses and Cellars.

Farm refrigerated storages. By Earl L. Arnold. Paper presented before the North Atlantic Section meeting of the American society of agricultural engineers, Oct. 13, 1937, Toronot, Canada. 9p. Mimeographed.

Farm storage cellar made at small cost. By H.B. White. Wisconsin Agriculturist and Farmer. v. 64, no. 21. October 9, 1937. p. 23.

Refrigerated storage on the farm. By Earl L. Arnold. Electricity on the Farm. v. 10, no. 12. December, 1937. p. 13-14. Farmers who keep accurate cost accounts estimate that it costs between ten cents and twenty cents a bushel to store apples for season in their own storage. When commercial storage is used, it is necessary to grade and pack fruit at picking time. Most farmers who have their own storages, store their fruit "orchard run," thus eliminating extra labor necessary for grading and packing. After picking is finished grading and packing is begun and carried on as fruit is removed for marketing. Labor is thus distributed over longer time, and fruit is placed on

Storage Houses and Cellars. (Cont'd)

market in "fresh pack." Recent survey of farms keeping cost accounts in New York showed that in year 1935, farmers operating their own mechanically refrigerated storages cleared above all costs, average of sixteen cents bushel more than farms using common storages, commercial refrigerated storages or neighbor's refrigerated storages.

Terracing.

Terracing level ground. By Tudor Charles. Kansas Farmer. v. 74, no. 47. October 9, 1937. p. 3. Erosion control developed for steep hills is adapted to Western Kansas to conserve moisture.

Tires.

Engineers discuss tractor tires. By C.L. Reifsnider. Farm Machinery and Equipment. no. 1846. October 15, 1937. p. 18, 42.

Plowmen win on rubber. Better Farm Equipment and Methods. v. 10, no. 3. November, 1937. p. 6-7.

Puts the farm on rubber. Better Farm Equipment and Methods. v. 10, no. 4. December, 1937. p. 8-9.

Rubber for roadless tractors and trailers. By Alexander Hay. London, England, Rubber growers' association, 1936. 13p. Rubber and agriculture series. Bulletin no. 3.

Tractors.

Choosing loads for a pneumatic tired tractor. Implement and Tractor. v. 52, no. 20. October 2, 1937. p. 19, 24.

Cost of tractor operation. By John W. Carncross. Farmers Digest. v. 1, no. 6. October, 1937. p.10-11. Table gives average cost per tractor; also relation of hours tractor was used per year and cost for the hour.

Garden tractor developments. By A.A. Stone. Presented at the Annual meeting of North Atlantic section A.S.A.E. Toronto, Ontario, Canada, 1937. 5p. Mimeographed.

Little tractor previewing. Implement & Tractor. v. 52, no. 20. October 2, 1937. p. 15-16.

Massey-Harris introduces twin power. Implement and Tractor. v. 52, no. 24. November 27, 1937. p. 14-15, 18, 38.

1936 tractor costs in Michigan. By H.B. Taylor. Michigan state college. Agricultural Experiment station. Quarterly bulletin. v. 20, no. 2. November, 1937. p. 76-79. Table 1. Yearly and hourly costs of using 56 Michigan tractors, 1936. Table 2. Relation

Tractors. (Cont'd)

of hours of use to tractor costs and farm operating efficiency (2-plow tractors), 1936.

Preparing the tractor for winter. By C.A. Olsen. Northwest Farm Equipment Journal. v. 51, no. 10. October, 1937. p. 25-26.

Proper kind of service. Implement and Tractor. v. 52, no. 23. November 13, 1937. p. 24-25. Tearing tractor down and reassembling it is erroneous idea of "rebuilding." People are scrutinizing more closely their tractor service--are demanding skill from those who presume to service such equipment.

Servicing tractors and implements for cold weather. By C.A. Olsen. Farm Implement News. v. 58, no. 20. October 7, 1937. p. 26, 28.

Servicing tractors for winter. By C.A. Olsen. Implement & Tractor. v. 52, no. 20. October 2, 1937. p. 25, 36.

Tractor operating costs. By A.J. Schwantes. Farm Implement News. v. 58, no. 21. October 21, 1937. p. 50. Also in Northwest Farm Equipment Journal. v. 51, no. 10. October, 1937. p. 27.

Tractor operating costs reported by owners. By A.J. Schwantes. Wisconsin Agriculturist and Farmer. v. 64, no. 21. October 9, 1937. p. 16.

Tractor testing under the R.A.S.E. scheme. Implement and Machinery Review. v. 63, no. 750. October 1, 1937. p. 565-566.

Tractors in favor as horses die. By A.E. Long. Implement and Tractor. v. 52, no. 22. October 30, 1937. p. 16. Epidemic reduces number of work animals and farmers turn to power, putting premium prices on used units. Shellers selling despite light corn crop.

Trail of the tractor. Better Farm Equipment and Methods. v. 10, no. 2. October, 1937. p. 13-15. Peaks and valleys of tractor production, and effect on number of farm animals shown by table and chart. Article also in Farm Machinery and Equipment. no. 1845. September 15, 1937. p. 7-8.

Using the tractor efficiently. By A.W. Clyde. State College. Pennsylvania, 1937. 20p. Pennsylvania state college. School of agriculture and experiment station. Bulletin 343.

Winter care of the tractor. By R.H. Chinn. Purdue Agriculturist. v. 32, no. 2. September, 1937. p. 16, 27.

Ventilation.

Ventilation for poultry houses. By George P. McCarthy. Farm and Ranch. v. 56, no. 15. August 1, 1937. p. 12.

Walls.

New walls over old. Successful Farming. v. 35, no. 11. November, 1937. p. 22. One of most successful of finishes and one that is growing in popularity among farm families is installation of beautifully finished wall-board over old and cracked plaster walls and ceilings. In panel form, it is applied directly over old surface, and left with smooth, even finish where the panels are joined.

Water, Underground

Underground water test. By E.R. Parsons. Western Farm Life. v. 39, no. 14. July 15, 1937. p. 12, 19. Before attempting irrigation wells plainsmen should consider these facts.

Water Conservation.

Mechanical methods of water conservation on pasture and range land. By Paul C. McGrew. Agricultural Engineering. v. 18, no. 4. November, 1937. p. 487-488, 491. Principal mechanical methods of water conservation used on pasture and range lands include contour furrows, diversion dams, flood irrigation, water spreading, dams to raise the ground water table, and stock water dams. Mechanical methods of water conservation have demonstrated their worth in many areas. However, if these practices are to have lasting benefit, it is necessary that proper land-use program be carried out for pasture and range lands. Such program must provide for regulated grazing and agronomic practices which will permit reestablishment of vegetation on areas where it is damaged or destroyed, and on areas having adequate vegetative cover it must be maintained.

Soil and water conservation investigations. Progress report, 1932-35. Upper Mississippi valley soil and water conservation experiment station, LaCrosse, Wisconsin. By O.E. Hays and V.J. Palmer. Washington, D.C., U.S. Department of agriculture. Soil conservation service, 1937. 57p. Contribution from Section of soil and water conservation experiment stations, Division of research, Soil conservation service and the University of Wisconsin cooperating in research. (Mimeographed for use of technical workers).

Water conservation and supplementary irrigation in the Northern Great Plains. By M.R. Lewis. Agricultural Engineering. v. 18, no. 11. p. 495-496. Greater use of water by cultivated crops than by native short grass has reduced quantity of water percolating through soil, and thus decreased natural replenishment of ground water. Studies at Nebraska station have shown that in certain areas alfalfa has depleted subsoil moisture to great depths and that many years are required for this moisture to be replaced. It seems probable that other crops, particularly wheat, may have contributed to lowering of water table in this way. While it is likely that there will again be relatively wet years in Great Plains area, it is equally probable that dry cycles will return. Conditions that have magnified ill results of current drought to population of area, as compared with former dry periods will have similar effects in future unless radical changes are made in agricultural practices.

Water Heating.

Case history of a water-heating group. By Roy Thurman. Electrical World. v. 108, no. 11. September 11, 1937. p. 65-67. Analysis of usage by electric water heater customers results in basic data which are converted into consumption and cost figures.

Developments in dairy water heaters. By Merrill Norton. Electrical Ruralist. v. 1, no. 6. October, 1937. p. 3, 20-21. Newly developed replacement and displacement types of small water heaters are efficient and inexpensive.

Water Rights.

Water pact difficult with Mexico. Engineering News-Record. v. 119, no. 14. September 30, 1937. p. 533. Mexico water users on Colorado below American boundary are expected to demand minimum of 1,800,000 acre feet of water. It is contended that this amount is necessary to supply 600,000 acres now under cultivation in that area. Since only 7,500,000 acre feet are available for use in lower basin, United States is not in position to spare that amount of water. United States, however, is in position to trade as between Colorado river water and Rio Grande river water. Matter is complicated further by difficulty of securing enforcement of any agreement that may be reached with Mexico. System of communal farming has been set up below the border, and all of American-owned land has been seized. Colorado river area is practically independent of central government of Mexico. As federal government is socialistically inclined, there is doubt as to how whole-heartedly it may be expected to put treaty into effect when it may involve military occupation of area. Recent strike among workers on Imperial Canal in Mexico is reminder of how precarious is continuation of water supply for Imperial Valley. It depends upon whim of loosely-organized, socialistic community. This menace is certain to overhang Imperial Valley until the spring of 1939, which is earliest possible time that water from All-American Canal may be expected.

Water Supply.

Regional planning. Part V. Red River of the North. National resources committee. Washington, U.S. Govt. print. off., 1937. 80p.

Thermal springs in the United States. By Norah D. Stearns, Harold T. Stearns and Gerald A. Waring. Washington, U.S. Govt. print. off., 1937. 206p. U.S.Department of the Interior. Geological survey. Water-supply paper 679-B.

Water resources of the Grand river drainage basin. A preliminary report of the Water resources committee. Brookings, South Dakota, S. Dak. state planning board, 1937. 51p. Mimeographed. South Dakota State planning board. v. 9.

Water Supply. (Cont'd)

Water resources of the Keya Paha Ponca river drainage basin. A preliminary report of the Water resources committee. Brookings, South Dakota, S.Dak. State planning board, 1937. 36p. Mimeographed. South Dakota State planning board. v. 10.

Water resources of the Little Missouri river drainage basin. A preliminary report of the Water resources committee. Brookings, South Dakota, S.Dak. State planning board, 1937. 27p. Mimeographed. South Dakota State planning board. v. 11.

Water resources of the Minnesota drainage basin. A preliminary report of the Water resources committee. Brookings, South Dakota, S.Dak. state planning board, 1937. 44p. Mimeographed. South Dakota State planning board. v. 12.

Water resources of the Missouri river drainage basin. A preliminary report of the water resources committee. Brookings, South Dakota, S. Dak. State planning board, 1937. 95p. Mimeographed. South Dakota State planning board. v. 8.

Water supplies from the no. 1 sand in the vicinity of Parlin, New Jersey. By Henry C. Barksdale. New Jersey. State water policy commission. Special report 7. 1937. 33p.

Weeds.

Eradicating bindweed. By C.W. Smith. Implement and Tractor. v.52, no. 20. October 2, 1937. p. 18, 24.

European bindweed and its control in Indiana. By Oliver C. Lee. Lafayette, Indiana, 1937. 4p. Purdue University. Cooperative extension work in agriculture and home economics. Leaflet no. 206.

Idaho is winning its weed war. Idaho Farmer. v. 55, no. 16. August 5, 1937. p. 6. Instead of operating each county as individual project as was done last year State has been divided into three districts to facilitate transfer of men and materials. W.P.A. furnishes 35 percent of materials, State 10 percent of county and individual 55 percent. At end of year State money will be allocated on uniform basis to counties according to amount of material which they need during season.

Quackgrass. By L.W. Kephart. Reclamation Era. v. 27, no. 10. October, 1937. p. 243-244. Control by tillage.

Wells.

Water levels and artesian pressure in observation wells in the United States in 1936, with statements concerning previous work and results

Wells. (Cont'd)

Prepared under the direction of O.E. Meinzer and L.K. Wenzel. Washington, U.S.Govt. print. off., 1937. 511p. United States Department of the Interior. Geological survey. Water-supply paper 817.

Wood.

Permeability of woods to liquids and factors affecting the rate of flow. By Harvey D. Erickson, Henry Schmitz and Ross Aiken Gortner. St. Paul, Minn., 1937. 42p. University of Minnesota. Agricultural experiment station. Technical bulletin 122.

Wood shrinkage is reduced by treating with sugar. Popular Mechanics Magazine. v. 68, no. 1. July, 1937. p. 63. When wood is treated with twenty-five per cent invert sugar solution no shrinkage occurs unless air with which it is in equilibrium has relative humidity of less than sixty percent. Shrinkage down to humidity of twenty per cent is only one-fifth that of untreated wood. Only disadvantage is that sugar solution drips from wood under very moist atmospheric conditions, causing loss of sugar and subsequent normal shrinkage in wood. Treatment is considered valuable for special uses in climates where air is rarely saturated.